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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,381	02/05/2004	Shuichi Kohayashi	118575	3326

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/771,381

Applicant(s)

KOHAYASHI ET AL.

Examiner

Ishwar (I. B.) Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/6/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group I, specie VI, reading on figure 9, in the reply filed on September 19, 2005 is acknowledged. The traversal is on the ground(s) that the subject matter of all the claims 1-12 and specie I-X is sufficiently related that a thorough search for the subject matter of any one group of claims or species would encompass a search for the subject matter of the remaining claims and species and the search and examination of the entire application could be made without serious burden. This is not found persuasive because a thorough search of both the groups, which are classified in different class and subclass and all the species with variations would be burden some to the examiner.

The requirement is still deemed proper and is therefore made FINAL.

However, as stated in the previous action, if a generic claim is found allowable, the claims, which are written in dependent form or otherwise include all the limitations of an allowed generic claims, will be rejoined and examined for the patentability.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). However, the certified copy of one of the applications, application No. 2004-28470, filed on February 4, 2004, has not been received.

Oath/Declaration

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The specification to which the oath or declaration is directed has not been adequately identified. See MPEP § 602.

Claim Objections

3. Claims 1-3 and 11 are objected to because of the following informalities:
Regarding claim 1, the limitation "wherein a volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions" is misleading. The language should be appropriately changed to reflect the invention. No holes are provided in the joining metal. Rather the holes or more appropriately "voids" are formed at the junction.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kakazu Osamu, Japanese Patent No. JP0909763A.

Regarding claim 1, Kakazu in the figure 1, discloses an oxide superconductor current lead in which metallic electrodes (2a, 2b) are provided at both sides of the oxide superconductor (1), joining metal (solder 4) is provided at joint portions formed by said superconductor and said metallic electrodes, and said oxide superconductor and said metallic electrodes are joined by the joining metal (4).

Kakazu does not explicitly disclose a volume of holes in the joining metal provided at the joint portions is 5% or less of a volumetric capacity of the joint portions. However, Kakazu further recites that the joint with is a low contact resistance. The holes formed by the entrapped gas at the joint will increase the resistance. Therefore, low contact resistance of Kakazu implies that there will be minimum amount of entrapment of the gas.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to have the structure of Kakazu with a volume of holes

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in the joining metal at the joint portions 5% or less of a volumetric capacity of the joint portions, in order to have a good joint and low contact resistance.

Regarding claim 2, Kakazu further discloses silver coat (3) provided on a surface of said oxide superconductor joined by the joining metal.

Regarding claim 3, Kakazu further discloses the joining metal is solder including Pb-Sn.

6. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kakazu, as applied to claim 1 above, and further in view of Sakuraba et al., US Patent No. 5,623,240 (Sakuraba).

Regarding claim 7, Kakazu in the figure 1, discloses an oxide superconductor current lead which is provided with metallic electrodes (2a, 2b) at both ends of an oxide superconductor (1), wherein in at least one of said metallic electrodes, said oxide superconductor is placed in said metallic electrode to be substantially in parallel with an interface between said metallic electrode and the mating conductor (see figure 1 and 2). Kakazu does not explicitly disclose any system where the metallic conductors are connected to mating conductor to transfer a current.

It is well known and routine in the art to use the current lead for transferring the current in a superconducting system. Sakuraba, in figure 1, discloses a magnet system with the current leads (106) transferring current.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to use the current lead of Kakazu in the system of Sakuraba for transferring the current to facilitate the functioning of the system, thereby meeting limitation of transferring the current from and to the mating conductor.

Regarding claim 8, Kakazu further discloses said oxide superconductor has a columnar shape, and is placed so that a longitudinal direction thereof is substantially in parallel with the interface (see figure 1 and 2).

Regarding claims 9 and 10, Kakazu discloses all the features of the claimed invention as applied to claim 7 above, but does not explicitly disclose said oxide superconductor is an oxide superconductor produced by a melting method, as claimed in claim 9, said oxide superconductor is an oxide superconductor made by joining a plurality of oxide superconductors, as claimed in claim 10. However, how the superconductor is made is a process step in the product claim. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art.

See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, Kakazu meets the limitation.

Regarding claim 11, Kakazu discloses all the features of the claimed invention including the joining metal, as applied to claim 7 above, but does not disclose a volume of holes in the joining metal constitutes 5% of a volumetric capacity of joint portions or less. However, Kakazu further recites that the joint with is a low contact resistance. The holes formed by the entrap gas at the joint will increase the resistance. Therefore, low contact resistance of Kakazu implies that there will be minimum amount of entrapment of the gas.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to have volume of holes in the joining metal at the joint portions 5% or less of a volumetric capacity of the joint portions, in order to have a good joint and low contact resistance.

Regarding claim 12, Kakazu discloses all the features of the claimed invention as applied to claim 7 above including the lead current is a part of a superconducting system as applied to claim 7 above (part of the system of Sakuraba).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larsen et al., US Patent No. 6,339,194, in the only figure discloses a superconducting current lead with metallic terminal 4 and 6.

Dixon et al., US Patent No., 6,034,324, in figure 1, discloses a superconducting device with current lead (14).

Nonoyama Hisao, Japanese Patent No. JP405279140A discloses a current lead with copper electrodes (4).

Kiyosi et al., Japanese Patent No. JP407099111A, in figure 1, discloses a bar shaped oxide superconducting current lead.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IB Patel

Ishwar (I. B.) Patel
Examiner
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October 31, 2005